

Claim 8 relates to a method for coating a hollow body. Claim 8 recites the steps of contacting a powder mixture with an inner surface of the hollow body to be coated and heating the powder mixture. Claim 8 recites that the powder mixture includes a metal donor powder, an inert filler powder and an activator powder, the activator powder including a metal halide. Claim 8 further recites that a mean particle size of the inert filler powder is approximately equal to a mean particle size of the metal donor powder. Claim 8 further recites that the mean particle size of the metal donor powder and the mean particle size of the inert filler powder are greater than 40 μm and that a metal donor powder content is 10% to 25% by weight of the powder mixture.

Hayman et al. purportedly relate to a process for coating articles such as turbine blades in a pack-cementation process. See Abstract. Hayman et al. state that the coating material may be chosen from a group: aluminum, chromium, titanium, zirconium, tantalum, niobium, yttrium, rare earth metals, boron and silicon together with a halide activator. See Abstract.

Strasser et al. purportedly relate to a method for the powder pack coating of hollow bodies. See Abstract. The hollow bodies are stated to be coated with a powder mixture including 80 parts by weight Al_2O_3 filler powder material and 40 parts by weight donor and activator powder material. See col. 3, lines 62 to 66. Accordingly, the Al_2O_3 donator powder and activator powder materials amounts to $40/(80 + 40)$ or 33% by weight of the powder mixture. Strasser et al. do not indicate what percentage of the weight of the powder mixture corresponds to the donator powder alone. Therefore, Applicants respectfully submit that the combination of Strasser et al. and Hayman et al. do not disclose the metal donor powder content being 10% to 25% by weight of the powder mixture, as recited in claim 8. Therefore, the combination of Strasser et al. and Hayman et al. does not disclose all of the limitations of claim 8.

To establish *prima facie* obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In *re* Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In *re* Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In *re* Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In *re* Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Since

the combination of Strasser et al. and Hayman et al. does not disclose, or even suggest, all of the limitations of claim 8, as more fully set forth above, it is respectfully submitted that the combination of Strasser et al. and Hayman et al. does not render obvious claim 8.

The Final Office Action alleges that Strasser et al. do not disclose that donator and activator total 40 parts by weight. Rather, the Final Office Action alleges that one skilled in the art would interpret the example of Strasser et al. at col. 3, lines 66 to 67, to disclose the use of 40 parts by weight donator and 40 parts by weight activator powder material. Applicants respectfully disagree. Strasser et al. specifically state that the powder mixture includes "80 parts by weight Al_2O_3 filler powder material . . . 40 parts by weight donator and activator powder material." See col. 3, lines 61 to 67 (emphasis added). Applicants submit that donator and activator are referred to together, in contrast to the filler powder, because the two together **total** a weight percentage of 40 parts. The Final Office Action admits that "one could literally interpret that teaching that there exists 40 parts together of the donor and activator" but alleges that its reading (40 parts by weight donator and 40 parts by weight activator powder material) is justified because "the activator is designed to react one to one with the donator to form the metal halide in gas phase upon heating which would require equal amounts of donator to activator." See Final Office Action at p. 4. Applicants respectfully traverse this contention to the extent that it is maintained and requests that the Examiner provide specific evidence to establish those assertions and/or contentions under 37 C.F.R. § 1.104(d)(2) or otherwise. In particular, it is respectfully requested that the Examiner provide an affidavit and/or that the Examiner provide published information concerning these assertions. This is because this rejection is apparently being based on assertions that draw on facts within the personal knowledge of the Examiner, since no support was provided for these otherwise conclusory and unsupported assertions. (See also M.P.E.P. § 2144.03). Applicants note that the exemplary embodiment of the present invention does not use an equal amount of activator (3%) and donator (approximately 20%). See Specification at p. 5.

The Final Office Action relies on the admitted ambiguity of the disclosure of Strasser et al. in support of the present rejection. Not only is the reliance on the ambiguity of the disclosure of Strasser et al. indicative of the present rejection being based on nothing more than pure speculation, any ambiguity of the disclosure of Strasser et al. should be resolved in favor of Applicants.

The Final Office Action further alleges that "even if one did not assume a one-to-one ratio of the donor to activator, the ranges of amounts of donator and activator

encompassed by having 40 parts total of the two would clearly overlap the claimed ranges of amounts of these components and using amounts in the portion of the range falling within the claimed range would have been obvious with a reasonable expectation of their being operable, absent evidence showing a criticality for using the claimed amounts." See Final Office Action at p. 4. Firstly, Applicants respectfully traverse the allegation that the Strasser et al. disclosure of (donator weight) + (activator weight) = 40 parts constitutes a disclosure of a range of donator weights. Claim 8 recites that the metal donor powder content is 10% to 25% by weight of the powder mixture. Accordingly, claim 8 recites a range for weight percentage of the metal donor powder independent of any other powder mixture component. Applicants submit that the Strasser et al. disclosure of a relationship between the donator and activator weights, is just that, a relationship between the weight of two components. Strasser et al. do not disclose, or even suggest, a percentage weight range for a single element of the powder mixture independent of the other powder elements, as recited in claim 8. Therefore, it is respectfully submitted that Strasser et al. do not disclose, or even suggest, a range that overlaps, encompasses, or is encompassed by the range set forth in claim 8, since the parameter allegedly described by Strasser et al. is unrelated to and entirely different from the parameter set forth in claim 8, *i.e.*, percentage by weight of a metal donor powder content to the powder mixture.

Notwithstanding the above, Applicants submit that it would not have been obvious to one of ordinary skill in the art at the time the invention was made, to have selected the allegedly overlapping portion of the range allegedly disclosed by Strasser et al. Applicants submit that the claimed range of 10% to 25% by weight of metal donor powder, as recited in claim 8, as well as the recitations that the mean particle size of the metal donor powder is greater than 40 μm , as recited in claim 8, achieve unexpected results relative to the prior art range. Applicants note that Strasser et al. disclose use of donator having a grain size smaller than 150 μm . See col. 4, line 1. However, as the Federal Circuit has stated, "[o]ne way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of 'unexpected results,' *i.e.*, to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected." *In re Soni*, 54 F.3d 746, 750, 34 U.S.P.Q.2d 1684, 1687 (Fed. Cir. 1995). As stated in the Specification at p. 2, U.S. Patent No. 4,208,453 describes a process for the diffusion coating of the inner and outer surfaces of gas turbine blades in which a chromium donor powder, including particles sizes of 10 to 20 μm , is used. The Specification points out

that a disadvantage of such a system is that the donor metal gas is depleted on its route through the cavities of the component and a layer thickness gradient is produced along the length of the cavity. See Specification at p. 2. The Specification points out the same problem with a process for diffusion disclosed by German Published Patent Application No. 30 33 074 which discloses use of a aluminum powder with a 40 μ m particle size. See Specification at p. 3. Therefore, Applicants submit that the claimed invention exhibits a superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected, namely the specific range of donor weight percentage and particle size prevents depletion of the metal gas and the creation of a layer thickness gradient. Accordingly, Applicants respectfully submit that claim 8 is patentable over the combination of Strasser et al. and Hayman et al. Therefore, withdrawal of the 35 U.S.C. § 103(a) rejection and allowance of claim 8 are respectfully requested.

As for claims 9 to 14, which depend from claim 8 and therefore include all of the limitations of claim 8, Applicants respectfully submit that the combination of Strasser et al. and Hayman et al. does not render obvious these dependent claims for at least the same reasons provided above in support of the patentability of claim 8. *In re Fine, supra* (any dependent claim that depends from a non-obvious independent claim is non-obvious).

III. Rejection of Claim 13 Under 35 U.S.C. § 103(a)

Claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Strasser et al., Hayman et al. and U.S. Patent No. 5,989,733 ("Warnes et al.").

Applicants respectfully submit that claim 13, which depends from claim 8 and, therefore, includes all of the limitations of claim 8, is not rendered obvious by the combination of Strasser et al., Hayman et al. and Warnes et al. for at least the same reasons provided above in support of the patentability of claim 8. *Id.*

IV. Conclusion

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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